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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,587	03/10/2004	Lucien A. Couvillon JR.	BSEN121512	6347
26389	7590	10/14/2005		
CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC 1420 FIFTH AVENUE SUITE 2800 SEATTLE, WA 98101-2347				
			EXAMINER SMITH, PHILIP ROBERT	
			ART UNIT 3739	PAPER NUMBER

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/798,587

Applicant(s)

COUVILLON ET AL.

Examiner

Philip R. Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/20/2005
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Claim Objections**

[01] The objection to claim 2 is withdrawn in view of the amendment of 9/22/2005.

[02] Claim 1 is objected to because "an optical fiber" is referred to twice. The apparent intent is as follows: "~~an optical fiber, the optical fiber being used~~ wherein said optical fiber is used ..."

### **Claim Rejections - 35 USC § 102**

[03] The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

[04] The rejections of claims 1-6 & 8-24 as being anticipated by Kikuchi (4,853,772) are withdrawn in view of the amendment of 9/22/2005.

[05] Claims 1-2, 4-6, 8-16 and 18-24 rejected under 35 U.S.C. 102(b) as being anticipated by Murakoshi (4473841).

[06] With regard to claims 1-2, 12 & 16: Murakoshi discloses a video endoscope system comprising:

[06a] An endoscope ("endoscope 1," 2/26) with a distal end and a proximal end;

[06b] An operator console ("display 16," 2/68) which is coupled to an imaging chip located at the distal end of the endoscope;

[06c] said imaging chip ("imaging portion 3," 2/33) comprising:

- An imaging array ("CCD 6," 2/35);

- An analog-to-digital converter and an encoder circuit ("modulator 8," 2/49-53);

[06d] Wherein the analog-to-digital converter and encoder circuit are integrated in the imaging chip to produce digital video data signals that are sent through an optical fiber (sent via "electrical-to-optical signal converter 9," 2/44-46);

[06e] Wherein said optical fiber is used for transmitting signals from the imaging chip, the optical fiber extending from the distal end of the endoscope toward the proximal end (2/60-67 with reference to Fig 2).

[07] With regard to claims 4, 13 & 18: Murakoshi discloses in 2/49-53 that the "modulator 8" may be a pulse-code modulator.

[08] With regard to claims 5-6, 14-15 & 19-20: Murakoshi discloses in 2/36-37 that "electrical-to-optical converter 9" is "typified by a light-emitting diode."

[09] Claims 8-11 & 21-24 are anticipated by Murakoshi as set forth in the Office action of 5/17/2005.

### **Claim Rejections - 35 USC § 103**

[10] The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

[11] Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakoshi in view of Lefevre (5821530) as set forth in the Office action of 5/17/2005.

[12] Claims 3 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

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Murakoshi in view of Lee (2005/0176167).

[13] Murakoshi discloses the entirety of claims 1 & 16, as noted above, including an imaging chip comprising a single imaging array, an analog-to-digital converter, and an encoder circuit.

[14] Murakoshi does not disclose that the imaging chip is a CMOS chip, or that the imaging array, analog-to-digital converter, and encoder circuit are fabricated using CMOS processes.

[15] Lee discloses the following in [0003]:

There are several problems in using the CCD due to its complex driving mode, high power dissipation, a complex process having lots of steps for a mask process and a difficulty in one chip realization owing to the fact that the signal processing circuit cannot be constructed on a CCD chip. Therefore, there has been actively researched on the CMOS image sensor that uses a sub-micron CMOS technology to overcome the above problems. The CMOS image sensor obtains an image by forming a photodiode and a MOS transistor in a unit pixel and then detecting signals sequentially through a switching mode. The use of the CMOS technology results in less power dissipation and an enabled one chip process for the signal processing circuit. Also, compared to the CCD process that requires approximately 30 to 40 masks, the CMOS image sensor implemented with the CMOS technology needs approximately 20 masks because of a simplified process. Hence, the CMOS image sensor is currently highlighted as a next generation image sensor.

[16] At the time of the invention, it would have been obvious to a person of ordinary skill in the art to replace the CCD image sensor disclosed by Murakoshi with the CMOS image sensor disclosed by Lee. Lee states that "the CMOS image sensor is currently highlighted as a next generation image sensor," and provides an accounting of the known advantages. In view of the state of the art as disclosed by Lee, the provision of a CMOS image sensor is an obvious update of the Murakoshi invention, patented in 1984. In his accounting of the known advantages of CMOS technology, Lee mentions that "CMOS technology results in

... an enabled one chip process for the signal processing circuit." At the time of the invention, it would have been obvious to a person of ordinary skill in the art that the signal processing circuitry disclosed by Murakoshi (the "analog-to-digital converter" and "encoder circuit") be fabricated upon a single chip, along with imaging array, using CMOS processes as prescribed by Lee.

### **Response to Arguments**

- [17] Applicant's arguments filed 9/22/2005 with respect to the Kikuchi reference have been considered but are moot in view of the withdrawal of the rejections.
- [18] Applicant's arguments filed 9/22/2005 have been fully considered but they are not persuasive. Applicant contends that "the reference [Murakoshi] does not teach or suggest the claimed combination of elements including an imaging chip with an integrated analog-to-digital converter and encoder circuit for producing digital video data signals that are sent through an optical fiber." As shown above, the "modulator 8" disclosed by Murakoshi, as specifically embodied by "pulse code modulation," anticipates the composition of an analog-to-digital converter and encoder circuit. By definition, pulse-code modulation takes an analog signal and produces a digital signal, thus inherently requiring an analog-to-digital converter and an encoder.
- [19] Applicant's arguments filed 9/22/2005 with respect to claims 3 & 17 have been considered but are moot in view of the new grounds of rejection, necessitated by the amendments of 9/22/2005.

### **Conclusion**

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- [20] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
- [21] A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.
- [22] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip R. Smith whose telephone number is (571) 272 6087 and whose email address is philip.smith@uspto.gov. The examiner can normally be reached between 9:00am and 5:00pm.
- [23] If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda Dvorak can be reached on (571) 272 4764.
- [24] Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

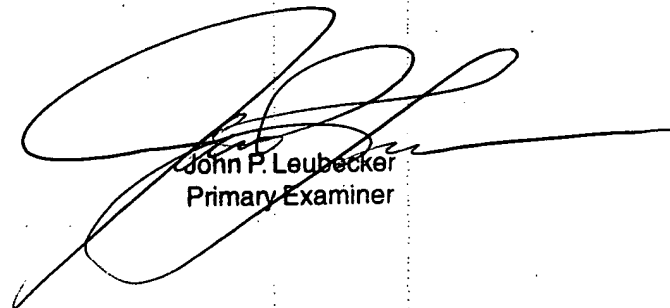
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applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

[25] prs



John P. Leubecker  
Primary Examiner